

What we claim is:

1. A fully vulcanized thermoplastic elastomer, characterized in that the average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is $0.02\mu\sim 1\mu$.

2. A fully vulcanized thermoplastic elastomer, characterized in that the shape of the rubber phase of said fully vulcanized thermoplastic elastomer is spheroidic.

3. The fully vulcanized thermoplastic elastomer according to claim 2, characterized in that the average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is $0.02\mu\sim 1\mu$.

4. The fully vulcanized thermoplastic elastomer according to any of claims 1 to 3, characterized in that the average particle size of said rubber phase is $0.05\mu\sim 0.5\mu$, more preferably $0.05\mu\sim 0.2\mu$.

5. The fully vulcanized thermoplastic elastomer according to any of claims 1 to 4, characterized in that the weight ratio of rubber phase to plastic is 30:70 to 75:25, preferably 50:50 to 75:25.

6. The fully vulcanized thermoplastic elastomer according to any of claims 1 to 5, characterized in that said rubber phase has a gel content of at least 60% by weight, preferably at least 75% by weight.

7. The fully vulcanized thermoplastic elastomer according to any claims 1 to 6, characterized in that the plastic matrix of said fully vulcanized thermoplastic elastomer comprises at least one polymer or copolymer thereof

selected from the group consisting of polyamide, polypropylene, polyethylene, polyvinyl chloride, polyurethane, polyester, polycarbonate, polyoxymethylene, polystyrene, polyphenylene oxide, polyphenylene sulfide, polyimide and polysulfone.

8. The fully vulcanized thermoplastic elastomer according to any of claims 1 to 7, characterized in that the rubber phase of said fully vulcanized thermoplastic elastomer comprises at least one rubber selected from the group consisting of natural rubber, styrene-butadiene rubber, carboxylated styrene-butadiene rubber, nitrile rubber, carboxylated nitrile rubber, polybutadiene rubber, chloroprene rubber, silicone rubber, acrylic rubber, styrene-butadiene-vinylpyridine rubber, isoprene rubber, butyl rubber, ethylene-propylene rubber, polysulfide rubber, acrylic-butadiene rubber, polyurethane rubber, and fluorine rubber.

9. A process for preparing a fully vulcanized thermoplastic elastomer, which comprises the step of blending fully vulcanized powdery rubber with plastic.

10. The process according to claim 9, characterized in that the weight ratio of fully vulcanized powdery rubber to plastic is 30:70 to 75:25, preferably 50:50 to 75:25.

11. The process according to claim 9, characterized in that the average particle size of the fully vulcanized powdery rubber is $0.02\mu\sim 1\mu$.

12. The process according to claim 9, characterized in that the shape of the fully vulcanized powdery rubber is spheroidic.

13. The process according to claim 12, characterized in that the average particle size of the fully vulcanized powdery rubber is $0.02\mu\sim 1\mu$.

14. The process according to any of claims 9 to 13, characterized in that the average particle size of the fully vulcanized powdery rubber is $0.05\mu\sim 0.5\mu$, preferably $0.05\mu\sim 0.2\mu$.

15. The process according to any of claims 9 to 14, characterized in that said fully vulcanized powdery rubber comprises at least one rubber selected from the group consisting of fully vulcanized powdery natural rubber, fully vulcanized powdery styrene-butadiene rubber, fully vulcanized powdery carboxylated styrene-butadiene rubber, fully vulcanized powdery nitrile rubber, fully vulcanized powdery carboxylated nitrile rubber, fully vulcanized powdery polybutadiene rubber, fully vulcanized powdery chloroprene rubber, fully vulcanized powdery silicone rubber, fully vulcanized powdery acrylic rubber, fully vulcanized powdery styrene-butadiene-vinylpyridine rubber, fully vulcanized powdery isoprene rubber, fully vulcanized powdery butyl rubber, fully vulcanized powdery ethylene-propylene rubber, fully vulcanized powdery polysulfide rubber, fully vulcanized powdery acrylic-butadiene rubber, fully vulcanized powdery polyurethane rubber, and fully vulcanized powdery fluorine rubber.

16. The process according to any of claims 9 to 15, characterized in that said plastic comprises at least one polymer or copolymer thereof selected from the group consist of polyamide, polypropylene, polyethylene, polyvinyl chloride, polyurethane, polyester, polycarbonate, polyoxymethylene, polystyrene, polyphenylene oxide, polyphenylene sulfide, polyimide and polysulfone.

17. The use of the fully vulcanized thermoplastic elastomer as claimed in any of claims 1 to 8 or prepared by the process according to any of claims 9 to 16 for preparing moulded articles.